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Claims

1. A foldable alpha numeric keyboard device configured to input data items into a computer or similar processing device, said keyboard device comprising a first electrically conductive fabric sheet and a second electrically conductive fabric sheet; an interface circuit configured to supply voltages to and receive outputs from said keyboard; wherein said keyboard is configured to produce an output in response to a mechanical interaction and said interface circuit is arranged to respond to said mechanical interaction and to provide a data item to said computer or similar processing device.

2. A foldable alpha numeric keyboard device according to claim 1, wherein said first electrically conductive fabric sheet is displaced from said second electrically conductive fabric sheet, such that conduction between said layers results when said layers are forced together by a mechanical interaction.

3. A foldable alpha-numeric keyboard device according to claim 2, wherein said keyboard further comprises a central conductive layer disposed between the first and second conductive layers, said central conductive layer having a conductance that increases as it is placed under pressure and allowing conduction between said first and second layers in response to a mechanical interaction.

4. A foldable alpha-numeric keyboard device according to claim 3, wherein said keyboard further comprises a first insulating means disposed

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between said first conducting layer and said central conductive layer, and a second insulating means disposed between said second conducting layer and said central conductive layer.

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5. A foldable alpha-numeric keyboard device according to any of claims 1 to 4, wherein said keyboard further comprises at least one electrically insulative masking layer disposed between said first electrically conductive fabric sheet and said second electrically conductive fabric sheet, said masking layer defining a plurality of holes through which electrical contact between first electrically conductive fabric sheet and a second electrically conductive fabric sheet can occur.

6. A foldable alpha-numeric keyboard device according to any of claims 1 to 5, wherein a plurality of key outlines is defined on said keyboard device, and said keyboard device includes a number of key registration devices configured to assist compression of said fabric layers within a particular one of said key outlines.

7. A foldable alpha-numeric keyboard device according to claim 6, wherein each said key registration device is configured to provide a user of the keyboard device with tactile feedback.

8. A foldable alpha-numeric keyboard device according to claim 7, wherein said tactile feedback provides an indication of the location of a key.

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9. A foldable alpha-numeric keyboard device according to claim 8, wherein a plurality of said key registration devices are configured to deform under pressure and said tactile feedback provides an indication that a key has been pressed.

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10. A foldable alpha-numeric keyboard device according to claim 9, wherein each of said key registration devices has a dome-like configuration and when under pressure, each said key registration device deforms inwardly until at a certain position resistance to deformation is suddenly reduced, while on release of said pressure said key registration device returns to its dome-like configuration.

11. A foldable alpha-numeric keyboard device according to claim 9 or claim 10, wherein a key registration device is located above said plurality of fabric sheets and said key registration device includes a base having a surface for attachment to one of said fabric sheets and a pressure focusing means, wherein said pressure focusing means is configured to apply a force to an area of said sheets when said key registration device is under pressure, and said pressure focusing means is configured such that said area is smaller than said base attachment surface.

12. A foldable alpha-numeric keyboard device according to any of claims 2 to 11, wherein said first of said fabric sheets includes conducting yarns electrically grouped to define a plurality of conducting rows, said second of said fabric sheets includes conducting yarns electrically grouped to define a plurality of conducting columns and the intersections of said rows

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and columns define separate regions of said keyboard device.

13. A foldable alpha-numeric keyboard device according to claim 12, wherein said interface circuit is configured to provide an output indicative of the specific region at which a mechanical interaction is present.

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Pkt* 14. A foldable alpha-numeric keyboard device according to claim 12 or claim 13, wherein said interface circuit is configured to apply a voltage across a particular one of said regions and to provide an output indicative of the position of the mechanical interaction within said particular region.

15. A foldable alpha-numeric keyboard device according to claim 12 or claim 13 wherein said interface circuit is configured to apply a voltage across a larger region defined by a plurality of said separate regions and to provide an output indicative of the position of the mechanical interaction within said larger region.

16. A foldable alpha-numeric keyboard device according to any of claims 14 to 15, wherein at least one of said separate regions corresponds to a plurality of different keys and a plurality of said separate regions each correspond to one key only.

17. A foldable alpha-numeric keyboard device according to any of claims 12 to 16, wherein said first fabric layer includes conductive fibres extending in a first direction and non-conducting fibres extending in a second direction, said second fabric layer includes conductive fibres extending in a

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third direction and non-conducting fibres extending in a fourth direction, such that said third direction is different to said first direction.

18. A foldable alpha-numeric keyboard device according to any of claims 2 to 11, wherein said interface circuit has two electrical connections only to each of said first and second conducting layers.

19. A foldable alpha-numeric keyboard device according to claim 18, wherein said conducting layers are conductive in all directions.

20. A foldable alpha-numeric keyboard device according to claim 18 or claim 19, wherein said electrical connections are made to opposing edges of said first conductive layer and to opposing edges of said second conductive layer.

21. A foldable alpha-numeric keyboard device according to any of claims **18 to 20**, wherein said interface circuit includes

a voltage supply means configured to apply a voltage across said first conducting layer;

a voltage measurement means configured to measure a first voltage;
a voltage supply means configured to apply a voltage across said
second conducting layer;

a voltage measurement means configured to measure a second voltage; and

output means configured to provide an output dependent on said first and second voltages, indicative of the position of said mechanical interaction.

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22. A foldable alpha-numeric keyboard device according to any of claims 1 to 21, wherein said device provides an output indicative of the pressure applied by said mechanical interaction.

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23. A foldable alpha-numeric keyboard device according to claim 22, wherein, in response to a mechanical interaction, a single measurement is made representing said resistance between the first and second electrically conductive layers of the keyboard and an output indicative of a mechanical interaction is provided.

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24. A foldable alpha-numeric keyboard device according to claim 22, wherein, in response to a mechanical interaction, a two measurements are made representing said resistance between the first and second electrically conductive layers of the keyboard and an output indicative of a mechanical interaction is provided.

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25. A method of identifying key presses on the foldable keyboard device of claim 12, said method including the steps of

20 applying a voltage to a larger region defined by a plurality of said separate regions;

detecting the presence of a mechanical interaction; and

determining the specific region at which said mechanical interaction is present.

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